

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 06 FEB 2004

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Applicant's or agent's file reference YCT-794	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/JP 03/02232	International filing date (day/month/year) 27.02.2003	Priority date (day/month/year) 27.02.2002
International Patent Classification (IPC) or national classification and IPC Int.Cl. ⁷ B01D39/16, B01D39/14, B01J47/12, C02F1/42		
Applicant EBARA CORPORATION		

<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of _____ sheets.</p>
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input checked="" type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>

Date of submission of the demand 06.08.2003	Date of completion of this report 20.01.2004
Name and mailing address of the IPEA/JP Japan Patent Office 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan	Authorized officer NAKAMURA Yasumitsu Telephone No. +81-3-3581-1101 Ext. 3466

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP 03/02232

I Basis of the report**1. With regard to the elements of the international application:***

- ☒ the international application as originally filed
- ☐ the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the claims:
Nos. _____, as originally filed
Nos. _____, as amended (together with any statement) under Article 19
Nos. _____, filed with the demand
Nos. _____, filed with the letter of _____
- ☐ the drawings:
sheets/figs _____, as originally filed
sheets/figs _____, filed with the demand
sheets/figs _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

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International application No.

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IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
☒ paid additional fees.
☐ paid additional fees under protest.
☐ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- ☐ complied with.
☒ not complied with for the following reasons:

I. The "special technical features" of claim 1 is a filter cartridge comprising a fiber membrane material obtained by introducing ion exchange groups and/or chelate groups into an organic polymer fiber membrane base material having an average fiber diameter 0.1 micro-meter to 20 micro-meter and an average pore size of 1 micro-meter to 20 micro-meter.

II. The "special technical features" of claim 5 is a filter cartridge comprising a fiber membrane material obtained by introducing ion exchange groups and/or chelate groups into an organic polymer fiber membrane base material, and a micro porous membrane material.

There is no technical relationship among those inventions involving one or more of the same or corresponding technical features for the reason indicated below:

The feature common to the two inventions is a filter cartridge comprising a fiber membrane material obtained by introducing ion exchange groups and/or chelate groups into an organic polymer fiber membrane base material. However, the search has revealed that this filter cartridge is not novel since it is disclosed in documents JP 2002-20959 A (Japan Atomic Energy Research Institute, EBARA Corp. & JAPAN vilene COMPANY, LTD.), and JP 2000-254456 A (FUJI PHOTO FILM CO., LTD).

Consequently the common feature is not a special technical feature within the meaning of PCT Rule 13.2, second sentence, since it makes no contribution over the prior art.

(see Supplemental Box)

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☒ all parts.
☐ the parts relating to claims Nos.

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International application No.
PCT/JP 03 / 02232**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims	<u>1-4, 6, 7, 9, 10</u>	YES
	Claims	<u>5, 8, 11-14</u>	NO
Inventive step (IS)	Claims	<u>1-4, 9, 10</u>	YES
	Claims	<u>5-8, 11-14</u>	NO
Industrial applicability (IA)	Claims	<u>1-14</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)**D1: JP 2000-254456 A (FUJI PHOTO FILM CO.,LTD), 19.09.00****Claim 1-4,9,10**

The subject matters of claims 1-4,9,10 appear to involve an inventive step over the documents cited in the ISR.

None of the documents cited in the ISR disclose that an organic polymer fiber membrane base material has an average fiber diameter of $0.1\ \mu\text{m}$ to $20\ \mu\text{m}$ and an average pore size of $1\ \mu\text{m}$ to $20\ \mu\text{m}$.

And it is not obvious for a person skilled in the art.

Claim 5,8,11-14

The subject matters of claims 5,8,11-14 do not appear to be novelty and to involve an inventive step with respect to D1.

D1 discloses a filter cartridge, which is for a system for water to a microelectronics device fabrication process, comprising a fiber membrane material obtained by introducing sulfonic acid group an ion exchange group, into an organic polymer fiber membrane base material, and a micro porous membrane material having an average pore size of $0.1\ \mu\text{m}$ (column 6 line 11 - 38).

Claim 6

The subject matters of claims 6 don't appear to involve an inventive step with respect to D1.

D1 discloses membrane material introducing ion exchange groups as prior art ; ion exchange groups are generally hydrophilic.

On the basis of this disclosure of D1, it is subject matter at which a person skilled in the art could have easily arrived to introduce a limited amount of ion exchange groups in micro porous membrane material to improve its ability of removal of metals.

Claim 7

The subject matters of claims 7 don't appear to involve an inventive step with respect to D1.

D1 discloses the radiation graft polymerization to introduce ion exchange groups into organic polymer fiber as prior art.

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Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: **IV. Lack of unity of invention**

Therefore, these groups of inventions are not so linked as to form a single general inventive concept.

The parts of international application which, in the opinion of this Authority, would be in compliance with the requirement of unity of invention are the claims Nos.: 1-4

The parts of international application which, in the opinion of this Authority, appear to relate to the main invention are the claims Nos.: 1-4